



UNIVERSITY *of* NICOSIA

ACADEMIC YEAR 2017-2018

# BSc in Human Biology

Student Handbook

School of Sciences and Engineering

Department of Life and Health Sciences



Welcome to the Human Biology Programme and to the Department of Life and Health Sciences of University of Nicosia!

This Handbook is intended to provide you with a brief overview of the Programme and with information that will be useful to you during your studies. Detailed information on the University and Department policies/regulations can be found on the University Web page on the Internet.

From the beginning of your studies, you will be assigned a Faculty Advisor/Mentor who will assist and guide you throughout your years at the University. Your advisor will play a valuable role as a source of advice on your path to graduation, including any additional information/clarification you may need regarding the requirements of the Programme during the course of your studies.

The Human Biology Programme is designed to educate you on the biological processes and mechanisms and on the issues and concepts related to human life and to health at the cellular, whole body and/or community and population levels. Along with the acquisition of subject specific knowledge and transferable skills, you will acquire life-long learning skills and you will learn to design and conduct laboratory experiments and to collect, analyze, and present research output. Depending on your interests, during the second half of the Programme you will have the option to gain further knowledge related to either Cell Biology or Human Health, or to both areas for a more comprehensive Degree in Human Biology.

The Programme is supported by highly qualified academic personnel, and by resources and science laboratories that help sustain both undergraduate student and faculty research work in fields such as Biochemistry, Cell and Developmental Biology, Molecular Biology and Genetics, and Humanities and Social Sciences.

We hope that this Handbook serves as a useful guide throughout your time at the University of Nicosia.

The Programme Coordinator

Dr Iris Charalambidou

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## 1.0 Programme Overview

The Bachelor of Science (B.Sc.) Degree Programme in Human Biology is an accredited interschool/interdepartmental, undergraduate programme. It aims to provide you with the opportunity to receive an interdisciplinary perspective on the relationship between the biological, health and sociocultural aspects of humanity's origin, development, function and prospects.

Many of you may ask "Why Human Biology and not Biology?" A programme in Biology focuses primarily on natural sciences whereas Human Biology takes a multifaceted approach to study humans, which includes the natural sciences, human health and cultural biology. The rationale behind the Programme is that the scientific approaches to understanding and resolving human problems today (i.e. those relating to health and to diseases), involve the integration of the knowledge components in biosciences, health and social sciences, all which you will acquire in your undergraduate years of study.

The Human Biology Programme is the first of its kind to be offered in Cyprus. Its structure has been modelled after analogous degree programmes in leading North American and UK Universities. It has been designed to allow you -after completion of the core courses (required courses)- to choose, depending on your interests, a more coherent body of specialized upper division courses. These courses aim to give you further particular learning experiences in the areas (themes) of either Cell Biology, or of Human Health at individual and population level. You may also choose to take a combination courses instead, from both areas to gain a more comprehensive knowledge.

As a student of the Programme you will also have to undertake a research project under faculty supervision. This will give you the opportunity to do independent research and help you expand your formal coursework.

The required courses along with any of your elective course combinations will be appropriate to qualify you for graduate studies in the Biosciences/Biomedical Sciences fields or to study Medicine as well as any other Paramedical Degrees. It is recommended that you talk to your advisors, especially in the second half of the Programme, to help you choose a coherent set of courses that will provide you with the best background necessary. There is no significant difference in acceptance rates in these fields between Biology and Human Biology majors.

Upon graduation of the Programme you will have attained a good knowledge and understanding of contributory subjects and of ethical issues related to human biology and human health. You are also expected to have developed basic laboratory skills and related abilities to do research, analyze and interpret experimental data as well as a number of other life-long learning and transferable skills relevant to employment and career. You are also expected to be able to integrate, critically evaluate and communicate scientific information and to work independently and as a member of a team in a professional manner.

## 2.0 Career Prospects:

On the basis of the major course requirements and the combination of elective courses, upon graduation you will have the potential to follow a career:

- In a scientific and/or medical research environment.
- In any Biomedical/Biosciences related diagnostics laboratory (public or private).

You will also be able to enter a wide variety of occupations including teaching and those occupations (administrative and research) concerned with Health such as those at:

- Government Offices (Ministry of Health); the EC,
- Local Health authorities and NGOs,
- Private industry (i.e. pharmaceutical companies),
- Health insurance companies/health service providers,
- Charitable or International Health Organisations (i.e. the WHO, the Red Cross, etc.).

Knowledge in biology and culture, human health and diseases are essential for professionals working in the latter posts in order to be able to confront the challenges and issues on health education, provision of health services, health policy and health advocacy in Cyprus and the European Community.

If instead you are interested to continue with graduate studies, you will be qualified to study towards an M.Sc. or Ph.D. in a large number of areas, for example, in Cell and Molecular Biology, Genetics, Public Health etc. and others related to Health Sciences or Behavioural Sciences. You will also be qualified to study for Medicine, Dentistry or for other Paramedical Degree.

## 3.0 Admission Criteria:

In general, any student admission to the Programme is based on the principle that there should be a reasonable expectation that the student will be able to fulfil the objectives of the Programme and to achieve the standards required for the award of a B.Sc. Degree.

- i. For admission to the Programme you require a recognized Secondary School Leaving Certificate with a grade of at least 17 out of 20 or equivalent qualifications.
- ii. Your registration to the science courses Chemistry, Biology and Mathematics will be considered on an individual basis. Students with “O” level Chemistry, Biology, and a passing grade of  $\geq 17$  out of 20 will be allowed to take these courses. If you do not meet these criteria you will be required to take first the Foundation Courses and achieve a minimum GPA grade of  $\geq 2.5$  out of 4 before you are allowed to register for any the relevant courses of the Programme. Your registration to the Mathematics courses of the Programme will depend on your performance in the Mathematics Placement Test which you have to take upon admission to the University. You may be required to take lower level Mathematics courses if your performance is low.
- iii. If English is not your first language, you will be required to demonstrate proficiency in English as specified in the University Academic Policy Document (GCSE or IGCSE 'O' level in English with a minimum grade of 'C', Computer Based TOEFL 183 and above, IELTS of 5.5). If you do not meet these criteria you will have to take

the University of Nicosia English Placement Test and may be required to take further English Language courses before you are allowed to register in the courses of the Programme. Advanced standing will be allowed on the basis of additional qualifications (i.e. GCE "A" Level in English).

iv. If you are a student with special needs you may be accepted under the Special Admission Terms of the University that allow you to take regular credits. Depending on your needs, however, load limits may apply.

v. Course Credits earned at other accredited Colleges/Universities will be considered for transfer upon petition with an attached syllabus and provided the passing course grade is  $\geq C$  (75%) and the courses are of the same quality and equivalency as courses offered by the Programme. Transfer of credits will have to be approved. You must provide to the Registrar all the documents required for the completion of the Official Credit Transfer Evaluation Report for approval. Transfer credits do not count towards a student's Credit Point Average (CPA).

vi. Regarding GCE "A" level, you are allowed a total of up to 30 ECTS unit credits for advanced standing in Chemistry, Biology and Physics provided you have obtained a grade of  $\geq 75\%$ .

vii. Regardless of the number of credits transferred from accredited Higher Education Institutions, graduates of 2-year accredited programmes and transfer students from 4-year accredited programmes in the same discipline from another Higher Education Institution in Cyprus or abroad, are required to gain a minimum of 120 ECTS from courses of the Human Biology Programme for the award of their Degree. Students who transfer from 3 year UK programmes in the same discipline, will require to gain a minimum of 90 ECTS from courses of the Human Biology Programme for the award of their Degree.

For further details on Admission Requirements consult the Academic Policy document which you can download from the Internet at:

(<http://www.unic.ac.cy/media/documents/UniversityofNicosiaAcademicPolicies2008.pdf> )

## The Aims and Learning Outcomes of the Programme:

The Programme aims and learning outcomes have references to the subject benchmarking statements for Biosciences (QAA, UK, EU) and comply with those in the USA.

### **Programme aims:**

To provide a general education in the molecular, cellular and whole body biological processes and mechanisms as well as in the technologies used to study these and in issues and concepts related to human life and health, required for further academic studies/career in medicine, the biosciences and biomedical fields or for careers in business sectors such as the biotechnology, the pharmaceutical industries and in the education sectors.

**Programme Learning Outcomes:** At the end of the Programme students will be able to:

1. Name, identify, describe, relate and explain the role and importance of the biological components, processes and mechanisms that define biological form and function at the molecular, cellular and whole body levels.
2. Relate biological functions to health and disease and to human development, genes, behavior and culture.
3. Follow instructions and apply modern technologies and laboratory methodology to collect, analyze, evaluate and critically appraise experimental data.
4. Describe and discuss the theoretical and experimental basis of scientific research, scientific literature and technologies used in the study of biomedical/biological research questions.
5. Design and execute a research project and organize, interpret, discuss and critically evaluate the project's outcome.
6. Apply critical, analytical, reflective and independent thinking (cognitive skills) in problem solving in the life and health sciences fields.
7. Apply life-long learning skills (computer skills, numeracy, communication and reporting), and demonstrate a professional and ethical approach to working individually or as a member of a team.

## 5.0 Programme Requirements:

Studying for your B.Sc. will take a minimum of four years to complete if you are a full time student and a minimum of eight years if you are a part time student. The Programme is delivered within the University's two semester framework. Depending on students' requirements and university staff availability, block teaching of courses within the summer semester (June, July) may be available.

To qualify for an Undergraduate B. Sc. Degree award in Human Biology you need to complete 240 ECTS and all programme requirements, as outlined below:

Core (Required) courses:	186 ECTS
Life and Health Science Elective courses:	36 ECTS
General Education Elective courses:	18 ECTS

You will be awarded ECTS credits for all courses that you pass. One ECTS credit corresponds to approximately 25-30 hours of "learning time" which includes all taught and supervised classes and all private study time. In order to pass a course you must normally obtain a minimum of 60% (D-) of the total assessment marks specified for the course. For the award of the Degree in Human Biology you are required to pass all the (required) courses to complete the 240 ECTS with a minimum cumulative point average (CPA) of 2.0. The correspondence of number grades to letter grades and grade points awarded are described in the University Academic Policies Part of the University of Nicosia website.

### 5.1 Attendance

The general conditions, which apply are described in the University Academic Policies Part of the University of Nicosia website. Students of the Human Biology Programme are required to attend all laboratory sessions of Courses with Labs.

### 5.2 Re-assessment and Appeals

Consult the University Academic Policy so that you are fully aware of the rules which apply if you fail a course or miss an announced exam and for appeals.

Regarding if you fail your research project:

- A Research Project Report deficient only in presentation may be revised and resubmitted to the designated assessors.
- If your research work is assessed as unsatisfactory or incomplete for two consecutive semesters you will be required to reregister in the BIOL-492/BIOL-492A Research Project II course.
- In the case of a repeated failure in progressing with your project after your 2<sup>nd</sup> registration, it is to the discretion of the Programme Curriculum Committee and/or your Research Project supervisor to determine the penalty on the basis of your CPA. You may be required to repeat a number of courses prior to be allowed to continue with your research project.
- Disagreement with the academic judgment of the Research Project assessors is not in itself grounds for an appeal. In the case of extenuating circumstances students may appeal following the University Academic Policy procedures.

### 5.3 Conditions of Award

Progression through the Programme will depend on you passing the courses and obtaining the credit points upon the successful completion of a number of summative assessment tasks defined for each course. The allocation of grades to each assessment task will be made known to you at the beginning of each course.

You must complete all Programme requirements and your Research Project with a minimum cumulative grade point average (CPA) of  $\geq 2.0$  to be awarded the Degree. **STUDENTS WHO COMPLETE THE PROGRAMME REQUIREMENTS AND HAVE CPA LOWER THAN 2.0 WILL NOT BE ABLE TO GRADUATE.** Consult the University Academic Policy for further information on the CPA level requirement for Academic Honors awards as well as for good academic standing, probation and ineligibility.

The complete record of your academic progress is kept at the Registrar's Office. Transcripts/Diploma Supplement with the standardized description of the nature, level, context, content and status of the courses you have successfully completed are available free of charge.

## 6.0 Programme Components

The taught part of the Programme as identified earlier consists of three main components: (a) Required Core courses (b) Life and Health Science Elective courses and (c) General Education Elective courses.

### 6.1 Required Core Courses (Total ECTS 186):

The required courses, which include an independent Research Project, form the core of the Programme and establish your cognate study areas. These courses will provide you a broad knowledge of physical sciences and mathematics and a more in depth knowledge of biological sciences (biochemical, immunological, microbiological, genetic, and socio-psychological aspects) related to cellular and whole body physiology in health and disease. They will also provide you with specific skills (i.e. laboratory and life-long learning skills), which are needed for the qualitative and quantitative analysis of biological data and for the understanding of molecular and cellular structure and function as well as for communicating and reporting scientific knowledge and research.

### 6.2 Elective Courses (Minimum 36 ECTS; 24 ECTS should be from the same theme):

The second component consists of a number of Life and Health Sciences elective courses that will provide you with more specialized knowledge related either to human biology (at cellular/molecular level) or to health (at the level of individuals and of populations). Counselling will be provided to help you with the selection of these electives so that your choice of courses may constitute a coherent area of study. The elective courses are sub-divided into two themes; at least 24 ECTS units should be gained from courses from one of the Themes, either the Cell Biology Theme or the Health Theme.

### **6.3 General Education Courses (Minimum 18 ECTS):**

The third component consists of a number of courses that will provide general knowledge and skills to enhance your cultural and/or communication and professional development. ENGL-101 (English Composition) is required as part of your general education component.

## 7.0 Programme Path

### 7.1 HUMAN BIOLOGY CORE REQUIREMENTS (Total ECTS 186):

A/A	COURSE NAME/CODE	WEEKLY HOURS	ECTS	LAB Yes/No	REQUIRED OR ELECTIVE
1	BIOL-101 General Biology I	5	6	Yes	R
2	BIOL-102 General Biology II	5	6	Yes	R
3	BIOL-201 Cell Biology	3	6	No	R
4	BIOL-205 Human Anatomy and Physiology I	5	6	Yes	R
5	BIOL-206 Human Anatomy and Physiology II	5	6	Yes	R
6	BIOL-207 Human Evolution	3	6	No	R
7	BIOL-221 Human Nutrition	3	6	No	R
8	BIOL-231 Biostatistics	3	6	No	R
9	BIOL-232 Human Molecular Genetics	4	6	No	R
10	BIOL-241 Immunology	3	6	No	R
11	BIOL-251 Introduction to Microbiology and Virology	6	6	Yes	R
12	BIOL-301 Developmental Biology and Human Embryology	7	8	Yes	R
13	BIOL-303 Human Biological Variation	3	6	No	R
14	BIOL-311 Molecular Biology	7	8	Yes	R
15	BIOL-312 Bioanalytical Technology and Instrumentation	4	8	No	R
16	BIOL-321 Biochemistry I	4	8	No	R
17	BIOL-322 Biochemistry II	7	8	Yes	R
18	BIOL-323 Molecular Basis to Health and Disease	4	6	No	R
19	BIOL-371 Drug Action and Toxicology	4	8	No	R
20	BIOL-491 Research Project I	3	6	No	R
21	BIOL-492 Research Project II		10	Yes	R
21	BIOL-492A Research Project II (field work)*		10	Yes	R
22	CHEM-105 General Chemistry	5	6	Yes	R
23	CHEM-135 Physical Chemistry	5	6	Yes	R
24	CHEM-245 Organic Chemistry	6	6	Yes	R

25	MATH-192 Calculus for the Life Sciences I	3	6	No	R
26	MATH-193 Calculus for the Life Sciences II	3	6	No	R
27	PHYS-110 Elements of Physics	3	6	No	R
28	PSY-110 General Psychology I	3	6	No	R

**\*Students should register for BIOL-492 or BIOL-492A depending on the nature of their project. Students should consult their research project supervisor if they are unsure.**

**7.2 LIFE AND HEALTH SCIENCES ELECTIVES (Minimum 32 ECTS; 24 ECTS should be from the same theme):**

A/A	CELL BIOLOGY THEME: COURSE CODE AND NAME	WEEKLY HOURS	ECTS	LAB Yes/No	REQUIRED OR ELECTIVE
1	BIOL-412 Modern Genomics and Bioinformatics	4	6	No	E
2	BIOL-413 Perspectives of Biotechnology	4	6	No	E
3	BIOL-414 Cell growth and Cancer	3	6	No	E
4	BIOL-421 Enzymology	3	6	No	E
5	BIOL-422 Basic Concepts of Applied Biochemistry	3	6	No	E
6	BIOL-423 Cell Signaling	3	6	No	E
7	BIOL-461 Cellular Neuroscience	4	6	No	E
8	BIOL-472 Drug Discovery Research	3	6	No	E
9	BIOL-481 Viruses and Human Diseases	3	6	No	E
	<b>HUMAN HEALTH THEME: COURSE CODE AND NAME</b>				
1	BIOL-402 Human Biology and Culture or ANTH-105 Cultural Anthropology	3	6	No	E
2	BIOL-403 Ecology	3	6	No	E
3	BIOL-431 Bioethics*	3	6	No	E
4	BIOL-441 Communicable Diseases	6	6	No	E
5	BIOL-442 Health Care Systems	3	6	No	E
6	BIOL-443 Epidemiology	3	6	No	E
7	BIOL-444 Public Health Nutrition	3	6	No	E
8	BIOL-451 Environmental Health	4	6	No	E

**\*This course can be included in both themes**

**7.3 GENERAL ELECTIVES (Minimum 18 ECTS):**

A/A	LANGUAGE EXPRESSION: COURSE CODE AND NAME	WEEKLY HOURS	ECTS	LAB Yes/No	REQUIRED OR ELECTIVE
1	ENGL-100 Basic Writing	3	6	No	E
2	ENGL-101 English Composition	3	6	No	R

3	BADM-231 Business Communication	3	6	No	E
4	BADM-232 Technical Writing and Research	3	6	No	E
5	COMM-200 Business and Professional Communication	3	6	No	E
<b>COMPUTER ELECTIVES: COURSE CODE AND NAME</b>					
1	COMP-150 Microcomputer Applications	3	6	No	E
2	COMP-151 Fundamental. Concepts of Info & Comp. Technology	3	6	No	E
3	MULT-160 Introduction to Multimedia	3	6	No	E
4	MULT-161 Introductory Multimedia Development	3	6	No	E
<b>HUMANITIES AND SOCIAL SCIENCE ELECTIVES: COURSE CODE AND NAME</b>					
1	ANTH-105 Cultural Anthropology	3	6	No	E
2	ART-110 Introduction to the Visual Arts	3	6	No	E
3	ART-111 Greek Art	3	6	No	E
4	ENGL-102 Western World Literature and Composition	3	6	No	E
5	ESCI-200 Society and Environment	3	6	No	E
6	HIST-201 World History to 1500	3	6	No	E
7	MUS-110 Introduction to Music	3	6	No	E
8	PHIL-101 Introduction to Philosophy	3	6	No	E
9	PHIL-120 Ethics	3	6	No	E
10	PSY-111 General Psychology II	3	6	No	E
11	PSY-210 Social Psychology	3	6	No	E
12	PSY-230 Brain and Behaviour	3	6	No	E
13	PSY-240 Abnormal Psychology	3	6	No	E
14	PSY-330 Psychology of Gender	3	6	No	E
15	REL-250 Ancient and Medieval Christian Thought	3	6	No	E
16	SOC-101 Principles of Sociology	3	6	No	E

(R) Required (E) Elective

## 4 Human Biology Programme -Flow Diagram

YEAR 1

YEAR 2

YEAR 3

YEAR 4

1 <sup>st</sup> Semester 2 <sup>nd</sup> Semester	Faculty	ECTS	3 <sup>rd</sup> Semester 4 <sup>th</sup> Semester	Faculty	ECTS	5 <sup>th</sup> Semester 6 <sup>th</sup> Semester	Faculty	ECTS	7 <sup>th</sup> Semester 8 <sup>th</sup> Semester	Faculty	ECTS
BIOL-101, General Biology I	Dept. Life & Health Sciences	6	BIOL-205, Human Anat. & Physiology I	Dept. Life & Health Sciences	6	BIOL-301 Develop. Biology and Human Embryology	Dept. Life & Health Sciences	8	BIOL-491-492 Research Project I-II	Appointed Supervisor , Dept. Life & Health Sciences	16
BIOL-102 General Biol. II	Dept. Life & Health Sciences	6	BIOL-206 Human Anat. & Physiology II	Dept. Life & Health Sciences	6	BIOL-311 Molecular Biology	Dept. Life & Health Sciences	8	L & H Sci. Theme Electives	Dept. Life & Health Sciences	36
BIOL-201 Cell Biology	Dept. Life & Health Sciences	6	BIOL-221 Human Nutrition	Dept. Life & Health Sciences	6				BIOL-323 Mol. Basis to Health & Disease	Dept. Life & Health Sciences	8
			BIOL-241 Immunology	Dept. Life & Health Sciences	6						
			BIOL-251 Introduction to Microbiology and Virology	Dept. Life & Health Sciences	6						
			BIOL-232 Human Molecular Genetic	Dept. Life & Health Sciences	6						
			Life Sci. Elective	Dept. Life & Health Sciences	6						
PSY-110 General Psychology I	Social Sciences Dept. Faculty	6	One General Elective	Social Sciences Dept. Faculty	6	One General Electives	Other Faculty	6			
Language Elective	Language Dept.	6	BIOL-231 Biostatistics	Maths Faculty	6	BIOL-303 Human Biological Variations	Dept. Life & Health Sciences	6			
MATH-192 Calculus for the Life Sciences I	Maths Faculty	6	3 <sup>rd</sup> CHEM-245 Organic Chemistry	Dept. Life & Health Sciences	6	BIOL-321 Biochemistry I	Dept. Life & Health Sciences	8			
MATH-193 Calculus for the Life Sciences II	Maths Faculty	6				BIOL-322 Biochemistry II	Dept. Life & Health Sciences	8			
PHYS-110 Elements of Physics	Engineering Faculty	6				BIOL-312 Bionalytical Technologies and Instrumentation	Dept. Life & Health Sciences	8			
CHEM-105 General Chemistry	Dept. Life & Health Sciences	6	BIOL-371 Drug Action and Toxicology	Dept. Life & Health Sciences	8						
CHEM-135 Physical Chemistry	Dept. Life & Health Sciences	6									
<b>Total</b>		<b>60</b>	<b>Total</b>		<b>60</b>	<b>Total</b>		<b>60</b>	<b>Total</b>		<b>60</b>

#### 7.4.1 EXAMPLE FOR CELL BIOLOGY THEME ELECTIVES WITH SEMESTER BREAKDOWN

1st Semester	Hours/ week	ECTS	2nd Semester	Hours/ week	ECTS
BIOL-101 General Biology I	3 +2 Lab	6	BIOL-102 General Biology II	3 +2 Lab	6
CHEM-105 General Chemistry	3 +2 Lab	6	CHEM-135 Physical Chemistry	3+2 Lab	6
MATH-192 Calculus for the Life Sciences I	3	6	MATH-193 Calculus for the Life Sciences II	3	6
PHYS-110 Elements of Physics	3	6	BIOL-201 Cell Biology	3	6
*ENGL-101 English Composition	3	6	PSY-110 General Psychology I	3	6
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>
3rd Semester	Hours/ week	ECTS	4th Semester	Hours/ week	ECTS
BIOL-205 Human Anat. & Physiology I	3 +2 Lab	6	BIOL-206 Human Anat. & Physiology II	3 +2 Lab	6
CHEM-245 Organic Chemistry	3 +3 Lab	6	BIOL-251 Introduction to Microbiology and Virology	3 +3 Lab	6
BIOL-221 Human Nutrition	3	6	BIOL-232 Human Molecular Genetics	3	6
BIOL-231 Biostatistics	3	6	BIOL-241 Immunology	3	6
BIOL-207 Human Evolution	3	6	*PSY-111 General Psychology II	3	6
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>
5th Semester	Hours/ week	ECTS	6th Semester	Hours/ week	ECTS
BIOL-301 Developmental Biology and Human Embryology	4 +3 Lab	8	BIOL-312 Bionalytical Technologies and Instrumentation	4	8
BIOL-311 Molecular Biology	4 +3 Lab	8	BIOL-322 Biochemistry II	4 +3 Lab	8
BIOL-321 Biochemistry I	4	8	BIOL-303 Human Biological Variations	3	6
*HIST-203 Modern Europe	3	6	BIOL-371 Drug Action and Toxicology	4	8
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>
7th Semester	Hours/ week	ECTS	8th Semester	Hours/ week	ECTS
BIOL-491 Research Project I	3	6	BIOL-492 Research Project II OR BIOL-492A Research Project II (field work)	(whole semester)	10
**BIOL-423 Cell Signaling	3	6	**BIOL-461 Cellular Neuroscience	4	6
**BIOL-431 Bioethics	3	6	BIOL-323 Molecular Basis to Health and Disease	4	8
**BIOL-414 Cell Growth and Cancer	3	6	**BIOL-412 Modern Genomics and Bioinformatics	4	6
**BIOL-451 Environmental Health	3	6			
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>

\* General Education Elective; \*\* Life and Health Sciences Elective;

#### 7.4.2 EXAMPLE FOR HEALTH THEME ELECTIVES WITH SEMESTER BREAKDOWN

1 <sup>st</sup> Semester	Hours/week	ECTS	2 <sup>nd</sup> Semester	Hours/week	ECTS
BIOL-101 General Biology I	3 +2 Lab	6	BIOL-102 General Biology II	3 +2 Lab	6
CHEM-105 General Chemistry	3 +2 Lab	6	CHEM-135 Physical Chemistry	3 +2 Lab	6
MATH-192 Calculus for the Life Sciences I	3	6	MATH-193 Calculus for the Life Sciences II	3	6
PHYS-110 Elements of Physics	3	6	BIOL-201 Cell Biology	3	6
*ENGL-101 English Composition	3	6	PSY-110 General Psychology I	3	6
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>
3 <sup>rd</sup> Semester	Hours/week	ECTS	4 <sup>th</sup> Semester	Hours/week	ECTS
BIOL-205 Human Anat. & Physiology I	3 +2 Lab	6	BIOL-206 Human Anat. Physiology II	3 +2 Lab	6
CHEM-245 Organic Chemistry	3 +3 Lab	6	BIOL-251 Introduction to Microbiology and Virology	3 +3 Lab	6
BIOL-221 Human Nutrition	3	6	BIOL-232 Human Molecular Genetics	3	6
BIOL-231 Biostatistics	3	6	BIOL-241 Immunology	3	6
BIOL-207 Human Evolution	3	6	*PSY-230 Brain and Behaviour	3	6
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>
5 <sup>th</sup> Semester	Hours/week	ECTS	6 <sup>th</sup> Semester	Hours/week	ECTS
BIOL-301 Developmental Biology and Human Embryology	4 +3 Lab	8	BIOL-312 Bionalytical Technologies and Instrumentation	4	8
BIOL-311 Molecular Biology	4 +3 Lab	8	BIOL-322 Biochemistry II	4 +3 Lab	8
BIOL-321 Biochemistry I	4	8	BIOL-303 Human Biological Variations	3	6
*HIST-203 Modern Europe	3	6	BIOL-371 Drug Action and Toxicology	4	8
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>
7 <sup>th</sup> Semester	Hours/week	ECTS	8 <sup>th</sup> Semester	Hours/week	ECTS
BIOL-491 Research Project I	3	6	BIOL-492 Research Project II or BIOL-492A Research Project II (field work)	(1 semester)	10
**BIOL-442 Health Care Systems	3	6	**BIOL-451 Environmental Health	3	
**BIOL-443 Epidemiology	3	6	BIOL-323 Molecular Basis to Health and Disease	4	8
**BIOL-441 Communicable Diseases	3	6	**BIOL-412 Modern Genomics and Bioinformatics	4	6
**BIOL-431 Bioethics	3	6			
<b>Total</b>		<b>30</b>	<b>Total</b>		<b>30</b>

\* General Education Elective; \*\* Health Sciences Elective;

## **8.0 Course Sequence Recommendations:**

All students are strongly encouraged to take the 100 series of courses in Biology, Chemistry and Mathematics during the first year since these courses are prerequisites for most of the higher-level courses in the Programme. In your long term plans ensure that you know which courses require prerequisites and plan accordingly.

### **8.1 Upper-Level Courses**

Course offerings may vary from semester to semester and from year to year, particularly at the upper-level (300- and 400- series). Some courses (particularly the 400-series) may not be offered every year because of cancellation by the Registrar due to low enrollment. It is important, therefore, to preregister and plan ahead. An early schedule of courses to be offered is always available from your Academic Advisor for your planning. You should consult this list and your Academic Advisor in the course of your study and make certain that you have *taken all of the courses that are prerequisites* for upper-level courses (required or electives).

### **8.2 Research Projects**

The required upper level courses BIOL-491 and BIOL-492/BIOL-492A allow students to learn in more detail about the various issues related to scientific research and to pursue an independent laboratory-based, technology-based or field-based research project under the supervision of a faculty member. Registration in these courses requires that you have completed all the Required 300 series courses of the Programme.

The experience that you will gain from an independent study-research project is an added advantage especially if you are intending to pursue acceptance to graduate or professional schools. Projects can be selected from the available list of projects proposed by faculty. For the project that you will be assigned you will be required to do a literature research, write up a proposal, execute the project, write a Research Report and present your project by the end of your final year of studies. The specific requirements for project selection, execution and project report are in Appendix I.

## **9.0 Teaching/Learning and Assessment Methods:**

In the beginning of each course you will be provided with the course syllabus and schedule where the course learning objectives and the methods of teaching/learning and assessment are specified. Student centered learning is an essential feature of the Programme and it becomes predominant in the second half of the Programme.

For several courses, Intranet facilities may also be available to you to access information on courses including lecture notes, support materials and Web resource links in order to support your learning.

### **9.1 Teaching and Learning methods:**

During the course of your studies a wide range of learning/teaching formats and resources will be used to help you acquire (a) the knowledge and understanding of the language, facts, details, and significance of scientific information related to human biology; (b) subject specific cognitive and transferable skills; (c) the long-life

learning and professional skills required for future employment; and (d) an ethical and professional attitude regarding research and working with others.

The Teaching and Learning methods normally used include:

- Lectures and seminars given by specialists.
- Laboratory Practical classes/demonstrations and/or computer-based workshops.
- Problem solving individual- or group-exercises and tutorial sessions.
- Directed and independent study, seminars and group or individual student presentations.
- Analysis of research papers and experimental data.
- Hands-on independent research project.

## **9.2 Assessment Methods:**

A wide variety of methods are used to assess your progress and attainment of the learning objectives of the Programme including:

- Quizzes/Test and comprehensive exams (multiple choice questions, comprehensive questions, short-answers).
- Essay assignment, laboratory work and reports, activity logs.
- Individual and group project assignments.
- Problem solving exercises.
- Individual and team seminars/presentations.
- Research Project.
- Peer review.

The learning objectives of the Human Biology Programme are separated into three areas containing specific goals:

Knowledge Goals: Name, identify, describe, relate and explain the role and importance of the following conceptual strands in Human Biology and related disciplines:

- Matter and energy
  - a. Types and structure of biological molecules
  - b. Catalysis and metabolic pathways
  - c. Energy conversions
- Structure-function relationships
  - a. Cell and cellular organelle structure and function
  - b. Physiological processes of the Human Body
  - c. Mind and Body communication
  - d. Cell communication
  - e. Molecular mechanisms of human diseases and immunity
- Transmission of genetic information
  - a. Heredity
  - b. Molecular mechanisms of information coding, use, and transfer
  - c. Population genetics
- Human development and factors affecting health and its representation
  - a. Human evolution, behavior and culture
  - b. Biological variations and health status
  - c. Determinants/causality and values of health

- d. Diversity in health experience and Health Care
- Scientific Research

Competencies: Demonstrate the following competencies and skills:

- Formulation of scientific/biological models based on observation/comparison/association of biological phenomena
- Testing/Evaluating scientific/biological models
- Applying analytical qualitative/quantitative methods to study biological problems
- Written, oral, and multimedia communication using scientific language and terms related to the field
- Retrieval and evaluation of information from the scientific literature, electronic databases, and online resources
- Use of scientific instrumentation and technology pertaining to the field
- Follow a scientific experimental method
- Self-assessment of knowledge and learning skills

Attitude Goals: Demonstrate:

- Consideration of ethical issues regarding Biosciences and Health Research
- Professionalism in working individually and as a member of a team.

### 9.3 Grades

The grading system used to mark your tests, exams, essays etc. and the equivalent grade points are as shown in the Table below:

<b>Number Grade</b>	<b>Letter Grade</b>	<b>Grade Points</b>
<b>93-100</b>	<b>A</b>	<b>4.0</b>
<b>9-920</b>	<b>A</b>	<b>3.7</b>
<b>87-89</b>	<b>B+</b>	<b>3.3</b>
<b>83-86</b>	<b>B</b>	<b>3.0</b>
<b>80-82</b>	<b>B</b>	<b>2.7</b>
<b>77-79</b>	<b>C+</b>	<b>2.3</b>
<b>73-76</b>	<b>C</b>	<b>2.0</b>
<b>70-72</b>	<b>C</b>	<b>1.7</b>
<b>67-69</b>	<b>D+</b>	<b>1.3</b>
<b>63-66</b>	<b>D</b>	<b>1.0</b>
<b>60-62</b>	<b>D</b>	<b>0.7</b>
<b>0-59</b>	<b>F</b>	<b>0</b>

## **10.0 Advising:**

### **10.1 Academic Advisor**

Upon entry to the Programme you will be assigned an Academic Advisor (AA) who will help you to select and register in courses every semester and with other academic issues that may arise in the course of your studies. You will need to see your AA at least once every semester to enroll in the courses selected but you are encouraged to consult with your AA whenever you have a question regarding your academic programme, course grades, etc.

### **10.2 Faculty Advisor/Mentor**

The Faculty Advisors (FA) for the Human Biology Programme are full time faculty members of the Department of Life and Health Sciences of the University, who are affiliated with and teach in this programme.

In the beginning of your studies you will be assigned a faculty member to act as your FA. It is up to you to contact the faculty member by e-mail, telephone or by visiting during scheduled office hours and to get to know him/her.

The FA will always be able to offer you a wider perspective than the AA or your fellow students. As the FAs are directly involved in your field of study and the Programme, they can be valuable in advising you not only on your programme path but also on your future plans, graduate studies, research, and career options. Your FA may also be able to advise you how to overcome difficulties in your learning experiences.

Student advising is an additional responsibility to the faculty and you should come prepared with questions and any documentation needed to discuss. Try to see them often and try to build a good working relationship with them. This can be of use when it comes to ask for recommendations, for help with your career planning, choosing a graduate school etc.

If you have trouble communicating/interacting with your FA you may discuss this with the Programme Coordinator or the Head of the Department and request for a change of FA.

You are always welcome to also address your questions and/or see any of the other faculty of the Programme independently, at all times.

## 11.0 Student Resources:

Information specifically valuable to Human Biology students may be found on the University's/Department's web pages and include listing of courses offered every semester and other information about the faculty and staff of the Department. It will be useful to familiarize yourself with the information and resources available on these web sites.

Independent learning packs, library-based materials, CD ROM and Web-Based literature search databases, computerized library catalogues, inter-library loans and video learning materials will be available to you during your studies. A range of ICT learning facilities for word processing, CAL software use, data processing and analysis, and computer interfaced instruments will also be available.

In addition there is a number of resources, which are available to all students at the University. These resources include the Academic Affairs Office, Students Affair Office, the Language Center and the Career Services Center. All of these services are provided to University of Nicosia students free of charge. Further information is available in the University's Web page <http://www.unic.ac.cy>

## 12.0 Cheating and Plagiarism

**Cheating** is defined as dishonesty of any kind in connection with assignments and examinations. It applies to both giving and receiving unauthorized help. **Plagiarism** is defined as copying and presenting the work of someone else as one's own. Cheating and plagiarism are contrary to the University's Code of Ethics and will be treated as a disciplinary offence in addition to failure in that particular assignment or examination. All student assignments will be checked for plagiarism using the Turnitin software. Any assignment with Turnitin score higher than 25 will be considered as plagiarism.

## 13.0 Health and Safety

In accordance with the University Policy you are responsible for observing the University Health and Safety rules and while working at the premises of the University to have regard to the safety of yourself and others who may be affected. For all courses with Labs you will be provided with Safety Rules which you must read and obey. Your access to a laboratory or other premises may be denied if you fail to comply with the published safety rules. Please, note that Laboratory Coats and the appropriate shoes (as well as protective glasses when required) must be worn while working in the Lab during any laboratory experiment or during your research project.

## 14.0 Equal Opportunity Policy

The University has adopted an Equal Opportunity Policy and is responsible for ensuring that the aims of this policy are fulfilled regarding students accepted to the Human Biology Programme.

## 15.0 List of the Life and Health Sciences Department Teaching and Research Faculty of the Programme

Faculty Name	Office	Telephone	E-mail
Dr Kyriacos Felekkis, Associate Professor/ Head of Department	A222	22-841751	<a href="mailto:felekkis.k@unic.ac.cy">felekkis.k@unic.ac.cy</a>
Dr. Catherine Demoliou, Professor	A217	22-841697	<a href="mailto:demoliou.c@unic.ac.cy">demoliou.c@unic.ac.cy</a>
Dr. Iris Charalambidou, Assistant Professor / Programme Coordinator	A219	22-841724	<a href="mailto:charalambidou.i@unic.ac.cy">charalambidou.i@unic.ac.cy</a>
Dr Myrtani Pieri, Assistant Professor	A219	22-841668	<a href="mailto:pieri.m@unic.ac.cy">pieri.m@unic.ac.cy</a>
Dr Stella Nicolaou, Assistant Professor / Programme Coordinator	A218	22-841783	<a href="mailto:nicolaou.s@unic.ac.cy">nicolaou.s@unic.ac.cy</a>
Dr Christos Papaneophytou, Assistant Professor	A217	22-841941	<a href="mailto:papaneophytou.c@unic.ac.cy">papaneophytou.c@unic.ac.cy</a>
Dr Zoi Konsoula, Lecturer	A214	22-841742	<a href="mailto:konsoula.z@unic.ac.cy">konsoula.z@unic.ac.cy</a>
Dr Vicky Nicolaidou, Lecturer	A214	22-841676	<a href="mailto:nicolaidou.v@unic.ac.cy">nicolaidou.v@unic.ac.cy</a>

## **16.0 Course Descriptions**

### **ANTH-105 Cultural Anthropology; ECTS /Credit Units: 6/3**

This course introduces students to human and cultural diversity. It explores the ways in which non-Western societies deal with universal human issues such as marriage and family, sex and gender, work and play, power, identity, meaning, and death. The aim of the course is to render non-Western societies understandable on their own terms and to widen students' horizons through the appreciation of cultural diversity. The format of the course is 3h/week lectures. PREREQUISITE(S): None

### **ART-110 Introduction to the Visual Arts; ECTS/Credit Units: 6/3**

Introduction to the Visual Arts is a survey course examining the history of art starting from as early as the prehistoric cave paintings in France and ending up to the art of the Renaissance. The course takes the students in a journey of art through the ages to study the various characteristics of artworks within certain time periods and how these characteristics are related to the meanings and functions assigned to the visual arts. Students develop basic skills needed in art historical research as well as the ability to write and speak clearly and logically about art historical concepts. The format of the course is 3h/week lectures. PREREQUISITE(S): None

### **ART-111 Greek Art; ECTS/Credit Units: 6/3**

A concise journey through different periods of Greek Art, beginning with the early forms of Cycladic Art, to the Art of the Hellenistic ages, with references to the most dominant forms of Art, such as architecture, sculpture, painting and pottery. Familiarization with such Art objects will promote critical thinking and aesthetics in all aspects of life and environment. The format of the course is 3h/week lectures. PREREQUISITE(S): None

### **BADM-231 Business Communications; ECTS/Credit Units: 6/3**

This course is designed to help students develop skills necessary to work within a business-oriented context. Students develop business communication skills in the areas of letter writing, drafting proposals, report writing and public speaking. The format of the course is 3h/week lectures. PREREQUISITE(S): ENGL-101

### **BADM-332 Technical Writing and Research; ECTS/Credit Units: 6/3**

Application of the principles and mechanics of research and technical writing. Students will conduct a primary research project. Skill development will be focused on applied writing skills; research design and development; electronic communication; research reporting and planning; and completion of a project. The format of the course is 3h/week lectures. PREREQUISITE(S): ENGL-101

### **BIOL-101 General Biology I; ECTS/Credit Units: 6/4**

The purpose of the course is to give students an understanding of the basic principles of biology and to raise fundamental questions that will strengthen their interest in the science of life. Students are introduced to the biodiversity of organisms and the fundamental principles of cell biology in Eukaryotic and Prokaryotic cells. Students learn the basic cell components (cell membrane and organelles), the function of

biological macromolecules, cell energy requirements and cell growth and reproduction. The course format includes 3h lectures/week and 2h hands-on laboratory experience. PREREQUISITE(S): A-level High School Biology or BIOL-110 Foundation Course.

**BIOL-102 General Biology II; ECTS/Credit Units: 6/4**

BIOL-102 is a continuation of BIOL-101. The course aims to give students a basic knowledge and background on the theory of evolution and on the structure and function of genes and chromosomes with regard to protein expression, gene mutations and genetic inheritance. Students are introduced to Mendelian genetics and to the structure and function of DNA, gene transcription and translation, how gene expression in prokaryotes and eukaryotes is regulated and about the bacterial genetics used in biotechnology. The course format includes 3h lectures/week and 2h hands on laboratory experience. PREREQUISITE(S): BIOL-101

**BIOL-201 Cell Biology; ECTS 6**The cell biology course provides a more in depth understanding of the structure and function of cellular organelles and components in cell motility, growth and division, and how cells communicate and/or interact with their surrounding microenvironment such as the extracellular matrix, neighboring and distant cells . The course stresses how cells receive and send messages intra- and extracellularly, how the messages received are interpreted and how cells regulate their functions to enable specificity of response to external and internal stimuli in order to maintain homeostasis. The student has the opportunity to analyze and interpret the function and behavior of cells and to appreciate the depth and scope of what is known and what is still unknown in the field of cell biology. The format of course delivery is 3h/week lectures. PREREQUISITE: BIOL-102 General Biology II.

**BIOL-205 Human Anatomy and Physiology I; ECTS/Credit Units: 6/4**

The aims of the course are to emphasize interrelationships of the human body organ systems, homeostasis and complementarity of structure and function. The student is introduced to the human skeletal, muscular and nervous system structure/parts and to their physiological functions in a logical and easy to understand manner which is complemented by gross and microscopic anatomy laboratory exercises on anatomical models and charts. Students learn to integrate body physiology to major human diseases and are introduced to research literature on clinical advancements. The course format includes 3h lectures/week and 2h hands on laboratory experience. PREREQUISITE(S): BIOL-101

**BIOL-206 Human Anatomy and Physiology II; ECTS/Credit Units: 6/4**

BIOL-206 is a continuation of BIOL-205. The student is introduced to the remaining body systems (Endocrine, Cardiovascular, Lymphatic, Immunity, Digestive, Urinary and Reproductive) and their physiology to complete the knowledge content on interrelationships of the human body organ systems, homeostasis and complementarity of structure and function. Lectures are aided with reference material regarding the latest research information on major human diseases and clinical advancements. Knowledge of body system physiology is further integrated to normal body functions and human diseases and complemented by gross and microscopic anatomy laboratory exercises on anatomical models and charts. The course format includes 3h lectures/week and 2h hands on laboratory experience. PREREQUISITE(S): BIOL-205

**BIOL-207 Human Evolution; ECTS/Credit Units: 6/3**

This course is a survey of the biological theory of evolution by natural selection, as related to the human species. It focuses on the various evolutionary perspectives on human biology, hominid behavior and the evolution of human social behavior. Major topics include basic genetics, general biological evolution, comparative anatomy, and primate and hominid evolution. The interrelationships between the evolution of behavior, morphology, adaptation and ecology provide the comparative basis for human origins. Students are given the opportunity to understand how humans are viewed by other disciplines from the natural sciences, the humanities and social sciences. The format of the course is 3h/week lectures. PREREQUISITE(S): BIOL-101. None

**BIOL-221 Human Nutrition; ECTS/Credit Units: 6/3**

This course presents the unifying concepts of the science of nutrition and the basis of the relationships of the nutrients, diet and health. The course provides an integrated overview of the physiological requirements and functions of protein, energy and the major vitamins and minerals that are determinants of health and diseases in human populations and the metabolic interrelationships among nutrients which maintain homeostasis in humans. Students through case paradigms discussed during lectures, learn to apply critical thinking to decision making regarding food choices and nutritional issues and about guidelines and policies regarding nutrition and health through the life cycle. The format of the course is 3h/week lectures. PREREQUISITE(S): BIOL-101 None

**BIOL-231 Biostatistics; ECTS/Credit Units: 6/3**

The course will introduce students to statistical methods with emphasis on the application of statistical ideas and methods for designing and interpreting biological experiments and comparative data. Students will be taught the use of SPSS, including the creation of variables and data sets, how to conduct statistical analyses, and interpretation of data outputs. The format of the course will be 3h/w lectures and 1h/w hands on experience using EXCEL and the SPSS software. PREREQUISITE(S): BIOL-102 None

**BIOL-232 Human Molecular Genetics; ECTS/Credit Units: 6/3**

This course integrates the latest data from the Human Genome Project and recent advances in genetic engineering and the most important concepts in classical and molecular genetics into an overall picture of what a gene is. Students are taught the relationship between the functions of chromosomes and genes, the mechanisms of inheritance (Mendelian and non-Mendelian) and the types of human genetic disorders. Students learn how comparative analysis of present day genomes have helped in studying the evolutionary origin of human DNA, its organization and complex genetic diseases; how to draw human pedigrees and predict the risk of inheritance of a genetic disease and to consider the ethical issues related to inheritance of genetic disorders. Students, through tutorial exercises are introduced to the various modern research methodologies used in genetic analysis and learn how to track and assess information on genetic traits and disorders from the Web databases. The format of the course is 3h/week lectures. PREREQUISITE(S): BIOL-102

**BIOL-241 Immunology; ECTS/Credit Units: 6/3**

This course introduces students to the theoretical knowledge in cellular and molecular immunology in greater depth. Students learn about the development of the immune system, the components of the immune defense and the apparatus, functions and regulation of the cellular and humoral immune defenses in health and disease. Immunogenetics, transplantation immunology, immune tolerance, immune hypersensitivity; autoimmunity and immune diseases are special topic presented in this course. Students also learn about the use of immunological methods in diagnostics and

biochemical analysis. The course format is 3h/week lectures with discussions on case studies of immune diseases. PREREQUISITE(S): BIOL-101 and BIOL-102

**BIOL-251 Introduction to Microbiology and Virology; ECTS/Credit Units: 6/3**

The course provides an overview of the basic biology and biochemistry of normal microorganism flora and of infectious microorganisms (bacteria, viruses and other microorganisms) causing human diseases. Students will learn about the mechanisms of infection, virulence, how microorganisms and host evade and overcome one another's offensive and defensive mechanisms, and about the uses, misuses, advantages and limitations of antimicrobial drugs. Students will gain experience of basic microbiology laboratory techniques that are used to grow and identify such microorganisms through hands-on laboratory exercises. The format of the course is 3h/week lectures and one 3h/week laboratory session. PREREQUISITE(S): BIOL-101 and 102

**BIOL-301 Developmental Biology and Human Embryology; ECTS/Credit Units: 8/4**

An overview of organismal developmental biology and experimental strategies for understanding the molecular mechanisms involved. The course focuses on the classical methods of analysis of the stages of embryonic development (frog, chick, mouse) and of human embryogenesis to present the fundamental molecular and cellular mechanisms that underlie normal differentiation and morphogenesis. Topics include developmental anatomy of early embryos, primary axis formation and regional specification, nervous system formation, establishment of cell fate, homeotic genes and the control of pattern, cell migration and cell-cell signaling, stem cell potency and development of muscle, cartilage, heart, reproductive system and limbs. Students gain experience in the methods of analysis of developmental stages through hands-on laboratory work and demonstrations. The format of the course is 4h/week lectures and one 3h/week laboratory session. PREREQUISITE(S): BIOL 206

**BIOL-303 Human Biological Variations; ECTS/Credit Units: 6/3**

The course presents the genetic basis of biological variation such as anthropometric, genetic (classical and complex traits), age and gender during growth and development. The theoretical and biological models, which explain biological variations during growth and development, the impact of human variations in health and disease susceptibility and in environment adaptation of humans, are presented and discussed. Special topics include the role of biological variations in major society movements such as eugenics and racism and their influence on human behavior and culture. The course format will be 3h/week lectures. PREREQUISITE(S): BIOL-231, BIOI-232

**BIOL-311 Molecular Biology; ECTS/Credit Units: 8/4**

A detailed presentation of the molecular processes involved in gene function and regulation during cell growth and division. The student develops an in depth understanding of the molecular processes involved in gene replication, homologous recombination, transposition and DNA mutations and repair as well as how gene transcription and translation are regulated. Students have the opportunity to train in basic molecular biotechnology applications used to study genes and gene activity. The course format is 4 h/week lectures and one 3h/week laboratory session. PREREQUISITE(S): BIOL-201, BIOL-232

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**BIOL-312 Bioanalytical Technologies and Instrumentation; ECTS/Credit Units: 8/3**

An introduction to the theoretical basis and applications of contemporary analytical technologies and instrumentation (Centrifugation, Electrophoresis, Chromatography, Spectroscopy, ELISA, PCR, gene-chip/microarrays technologies, Radiolabeling etc.) used in Biosciences and Biomedical research. The course integrates theory and application examples to explain why, when and how each technology and instrumentation are used and the type of output information obtained. Cutting-edge topics such as new technologies and databases for drug and gene discovery are reviewed. The course provides challenges on laboratory research methodology problems encountered in a Biochemistry, Molecular Biology, Biotechnology, Pharmaceutical labs and guides students through solutions. Students have the opportunity to become familiar with scientific equipment and new technologies through on site and/or video demonstrations and through interpretation of profiles of scientific data output. The course format is 4h/week lectures out of which 1h may include demonstrations of scientific equipment and/or technologies. PREREQUISITE(S): BIOL-321, -322 Biochemistry I, II BIOL-311 Molecular Biology

**BIOL-321 Biochemistry I; ECTS/Credit Units: 8/4**

This course explores the roles of essential biological molecules with a focus on the fundamental biochemical concepts of carbohydrates, proteins and nucleic acid structures, their properties and function in relation to their biological role. The course presents the principles that determine the three-dimensional structure of biological macromolecules and discusses how structure enables function with emphasis on membrane structure and components involved in cell communication. The biochemical basis of genetic inheritance and protein expression as well as the chemical and thermodynamic principles underlying biochemical reactions and the relationship of enzyme structure to catalysis and regulation are also discussed. The course format is 4h/week lectures. PREREQUISITE(S): CHEM-245, BIOL-201, BIOL-206

**BIOL-322 Biochemistry II; ECTS/Credit Units: 8/4**

Students gain a deeper understanding of the links between physical and organic chemistry and biology. The fundamental concepts related to the central energy requirements and metabolism as well as the basic chemical properties and pathways that underlie metabolic processes are discussed. Emphasis is placed on how these pathways are integrated and regulated in the context of bioenergetics to maintain cell and whole body homeostasis in health and disease states. Students develop a good understanding of the most important recent developments and applications of biochemistry principles in targeting key molecules for therapeutic interventions. They also develop basic laboratory skills and critical thinking to study cell macromolecules using biochemical techniques. The course format is 4 h/week lectures and one 3h/week laboratory session. PREREQUISITE(S): BIOL-321.

**BIOL-323 Molecular Basis to Health and Disease; ECTS/Credit Units: 8/4**

This course aims to develop students' awareness of the advances in -omics research and the contributions of such research to study and understand the molecular basis of biochemical and biophysical cellular mechanisms and their regulation. The course integrates genomics and proteomics with current clinical medical information on selected diseases thus linking cell/tissues with syndromes, genetic pathways with disease phenotypes and protein expression, and gene expression regulation with therapeutic interventions and strategies. The course provides students with knowledge, skills and opportunities to identify, analyze and discuss the molecular basis for the cause, effect of major diseases, and encourages individual and interactive life-long learning skills. The

course format is 4h/week lectures. PREREQUISITE(S): BIOL-311, BIOL-322

**BIOL-371 Drug Action and Toxicology; ECTS/Credit Units: 8/4**

The course covers basic pharmacological principles (pharmacokinetics, pharmacodynamics) and the general concepts of biochemical reactions which are involved in the mechanisms of drug action and toxicity. Emphasis is placed on mechanism(s) of action of the various drug classes, body system(s) affected, and the resulting adverse effects on human health and society. Students learn to integrate relevant knowledge from chemistry and biochemistry to explain aspects of drug metabolism by specific metabolizing and detoxifying enzyme systems in relevance to biotransformation, to drug therapy and to nutrition. The therapeutic and adverse effects of drugs and of exposure to drugs or substances of abuse are covered in the framework of human biochemistry, physiology and pathophysiology. The course format is 4h /week lectures. PREREQUISITE(S): BIOL-321

**BIOL-402 Human Biology and Culture; ECTS/Credit Units: 6/3**

The course gives a theoretical framework in cultural biology within which the student can explore in depth aspects of modern human biology, behavior and culture within an evolutionary context. The students are introduced to the relationships between evolution and the adaptive significance of key morphological innovations for the development of an evolutionary foundation for the diversity in human behavior and culture. Students explore how the evolutionary perspectives provide the biological continuity for assessing aspects of modern human behavior and of modern human culture. The course format is 3h/week lectures with discussions on current literature on sociocultural and behavioral human issues. PREREQUISITE(S): none

**BIOL-403 Ecology; ECTS/Credit Units: 6/3**

This is a basic subject in ecology where students get exposed to the fundamental ecological principles with reference to ecosystem organization at individual, population and community levels with regard to the flow of energy and materials and to the regulation of distribution and abundance of organisms. The course covers productivity, food and energy dynamics, community structure and stability, exploitation and predation, structural adaptation and functional adjustments, population growth and other physiological factors affecting the distribution of organisms and degree of fitness in the environment. The course format will be 3h/week lectures and discussion on current ecological issues and/or literature. PREREQUISITE(S): none

**BIOL-412 Modern Genomics and Bioinformatics; ECTS/Credit Units: 6/3**

In this course students will expand further their knowledge and understanding of the application of computational programs and modeling in genome analysis and in the complex field of comprehensive experimental investigations in systems biology and diseases and in drug development (pharmacogenetics, pharmacogenomics) through modeling, simulation and hypothesis generation. Students are introduced to all aspects of bioinformatics from a sequence perspective, gene expression and microarrays, proteomics and protein bioinformatics, genomes and diseases data. Students obtain practical experience on computer programs and database tools for information retrieval and dynamic modeling using computational approaches based on realistic molecular mechanisms in cell biology. The course format will be 3h /week lectures and 1h/week practical tutorial. PREREQUISITE(S): BIOL-311

**BIOL-413 Perspectives of Biotechnology; ECTS/Credit Units: 6/3**

This course explores the scientific basics of the technology used in creating recombinant DNA molecules and "transgenic" animals and plants, the current and potential uses of this technology in agriculture and medicine, and the ethical and societal issues raised by the present and future uses of biotechnology. Lectures will include topics such as the genetic modification of microbial, plant, & animal cells, and important medical, industrial, agricultural and environmental applications of biotechnology. Students working independently or in pairs will have to select topics of interest for literature investigation and presentation. The course format will be 4h/week session of lectures and/or discussions on current biotechnology advancements. PREREQUISITE(S): BIOL-311

**BIOL-414 Cell Growth and Cancer; ECTS/Credit Units: 6/3**

This course provides students an opportunity to get a further understanding of how the basic biological processes that underlie the control of cell growth and metabolism are abrogated during the initiation and progression of cancer. Lecture material is complemented with student led presentations and discussions on special topic such as the role of growth factors, oncogenes, tumor suppressor genes, angiogenesis and signal transduction mechanism in tumor formation, aspects of cancer epidemiology, prevention, cancer management and ethics. The course format will be 3h/week lectures with presentation/discussion sessions on current topics and literature on cancer. PREREQUISITE(S): BIOL-301

**BIOL-421 Enzymology; ECTS/Credit Units: 6/3**

This course covers enzyme nomenclature and enzyme cofactors, the physical and chemical properties of enzymes and provides a mechanistic overview of enzyme activity and regulation. Topics to be discussed include enzyme purification, how enzyme catalysis occurs, enzyme kinetic analysis, environmental effects on catalysis, regulation of activity by allosteric effectors and covalent modification, different types of mechanisms and activity inhibition. The practical aspects of enzymology are integrated with the kinetic theories through the review of a number of important enzyme families, their mechanisms of action and applications in biotechnology and industry. Students have to make one detailed presentation of the properties, kinetic studies and applications of an enzyme of their choice. The course format will be 3h/week lecture sessions and/or students' presentations. PREREQUISITE(S): BIOL-322

**BIOL-422 Basic Concepts of Applied Biochemistry; ECTS/Credit Units: 6/3**

In this course students will learn how the physicochemical principles and laws (mass, density, energy, kinetics, thermodynamics, absorption) that govern the biochemical properties/mechanisms of action/interactions of biological molecules, are applied to purify, measure, analyze and deduce structure-function relationships for solving problems in biology and medicine using modern technologies and instrumentation. The topics presented are complemented with data output analysis from methodology literature papers on purification of biological molecules (chromatography, electrophoresis, centrifugation etc.), structure and physical/chemical properties determination (energetics, NMR, MS, crystallography and X-ray diffraction etc) and on kinetics and thermodynamics data of protein-ligand interactions. The course format will be 3h/week lecture sessions and/or discussions on data analysis from literature papers. PREREQUISITE(S): BIOL-322

**BIOL-423 Cell Signalling; ECTS/Credit Units: 6/3**

The course explores the general principles of cell signaling and a variety of signal transduction pathways and their function in the regulation of cellular processes and gene expression in response to messages generated from cell-to-cell communication and cell surface receptor activation. The course emphasizes basic physicochemical concepts of ligand interactions with biological systems and mechanisms of common signalling pathways, including classical second messengers, G protein dependent mechanisms and regulation via protein phosphorylation. The course also stresses how the perturbation of signaling pathways can result in disease processes. Lectures are supported by discussion of classic and current research articles and presentations by students. The course format will be 3h/week lecture sessions with discussions. PREREQUISITE(S): BIOL-321

**BIOL-431 Bioethics; ECTS/Credit Units: 6/3**

This course begins with an overview of ethics and then moves to the discipline of bioethics with emphasis on moral, institutional and scientific issues related to integrity in medical practice and medical research, the design and conduct of biomedical research and to health care provision. The course will focus on a variety of issues from the standpoint of patients, medical professionals, researchers and citizens that arise as a result of modern biotechnology and biomedical research. Topics include: use of animals in research, use of stem cell, genetic engineering and reproductive technologies; social justice and the right to health care/allocation of resources; patient rights, informed consent, data handling/integrity; euthanasia and others. By using a case-based approach, students will gain knowledge about the multitude of issues they will confront both as citizens and as scientists regarding research. The course format will be 3h/week lectures with discussions. PREREQUISITE(S): none

**BIOL-441 Communicable Diseases; ECTS/Credit Units: 6/3**

An introductory course on the principles of communicable disease epidemiology and the WHO/EC policy and regulations for prevention and control from a public health perspective. Students will be given an overview of disease transmission mechanisms (causative agent, reservoir hosts, modes of transmission, period of incubation, symptoms), the methods used to control infectious diseases (features of good surveillance systems) and the risks associated with control measures ( pharmaceutical and non-pharmaceutical, border control and quarantine) vs. the ID of infectious agents. Using case studies students will learn about basic principles of outbreak investigations (data collection, epidemic curves, calculation of odds ratios, case control studies, vaccine effectiveness calculations), the control and prevention of outbreaks and its associated challenges. The impact of travel, refugee populations and internationally displaced persons have on infectious disease transmission, surveillance and control will also be discussed using case studies on preparedness and containment of diseases with potentially catastrophic impact to the health and economic stability of the world. The course format will be 3h/week with discussions on case studies on communicable diseases. PREREQUISITE(S): BIOL-231, BIOL-251

**BIOL-442 Health Care Systems; ECTS/Credit Units: 6/3**

This course provides an overview of major healthcare systems and a comprehensive introduction to public health concepts, practices and policies that have shaped healthcare in Europe and other countries. The course examines the philosophy, purpose, history, organization, function, tools, activities and results of public health practices and the EU/WHO standards and regulations. It addresses important health issues and problems facing public health systems and the relationship of public health to health interventions and to health care financing and organization. Students learn about the approaches and ethical consideration to program planning and evaluation for public health interventions and about public health activities such as epidemiological investigations, biomedical research, environmental issues, policy development and health care delivery. The course

format will be 3h/week with discussions on current topics regarding Health Care systems and policies. PREREQUISITE(S): BIOL-231

**BIOL-443 Epidemiology; ECTS/Credit Units: 6/3**

This course concentrates on the principles applied in the practice of epidemiology in public health and on the criteria for critically evaluating epidemiology studies. It introduces students to causal thinking and causal inference and to the elements of epidemiology, focusing on the measures of disease occurrence and causal effects and the assessment of epidemiological study designs and research activities. The course incorporates theory and practice in presenting traditional and new epidemiological concepts with emphasis on analytic study design: experimental, cohort and case-control studies. The students become familiar with terminology and key concepts in the design, analysis, and interpretation of epidemiological research including confounding, the role of chance and the exploration of interactions. Students learn how to critically evaluate scientific epidemiological literature through case studies discussions. The format of the course will be 3h/week lectures and discussions on current topic in Epidemiology. PREREQUISITE(S): BIOL-231, BIOL-251

**BIOL-444 Public Health Nutrition; ECTS/Credit Units: 6/3**

This course focuses on food and nutrition problems that influence the health, survival and developmental capacity of individuals and populations in developing societies and on the approaches used to improve nutritional status at the household, community, national and international levels. The course examines the practice of public health nutrition: nutrition environment, program planning/implementation/ evaluation and policy development/implementation/ evaluation by integrating dietary, epidemiological, public health, social and biological aspects of nutritional science. Special topics include the relationship of diet to growth and development and to chronic disease, application of nutrient requirement estimates and nutrition recommendations for dietary assessment and nutrition policy to reduce disease risk, the measurement of food intake and food insecurity, and the development of individual- vs. population-based intervention strategies (nutritional education, food assistance). The format of the course is 3h/week lectures with discussions on current topics and policies in Public Nutrition. PREREQUISITE(S): BIOL-221, BIOL-231

**BIOL-451 Environmental Health; ECTS/Credit Units: 6/3**

The aim of the course is to introduce students to environmental factors (population growth, agriculture, industry, carcinogens, toxicants etc.), which have influenced patterns of health and disease. During the course students gain an understanding of how human behavior and culture factors have contributed in the interactions of human societies with the wider environment, and how these interactions have affected human health, wellness and the stability of ecosystems. The student is also introduced to environmental organizations and current legislations and regulations regarding environmental health issues as well as to the monitoring of environmental health and the risk assessment modeling and disaster response methods and processes used. The format of the course is 3h/week lectures with discussions of literature on current topic in Environmental Health. PREREQUISITE(S): PREREQUISITE(S): BIOL-231

**BIOL-461 Cellular Neuroscience; ECTS/Credit Units: 6/3**

This course provides the student with an overview of the major issues of cellular neuroscience and the intellectual tools for understanding recent advances of the cellular and molecular processes underlying neural signaling, synaptic transmission and plasticity. Topics include basic morphology and functions of neurons, glia and the sensory systems; electrical properties of neurons; development of membrane potentials and signal propagation; molecular properties of ion channels and their role in neuronal

signaling; synaptic receptors and channels: signal transduction; modulation of synapses and simple memory mechanisms; neurotransmitter synthesis and transport; excitatory and inhibitory amino acids; neurotrophic factors and neuronal migration; axonal path-finding; plasticity and synaptic rearrangement. Examples of how this basic knowledge is used to understand disease states and neurodegenerative diseases are used. The course format will be 4h/week lectures with discussion on current topics in Cellular Neuroscience advances and neuronal diseases. PREREQUISITE(S): BIOL-201, BIOL-321

**BIOL-472: Drug Discovery Research; ECTS/Credit Units: 6/3**

An overview of the pharmaceutical industry approaches and drug development research from different perspectives: scientific, technological, clinical, and ethical. Students learn about the biotechnology and drug development-research strategies (proteomics, pharmacogenomics, pharmacogenetics) used for identifying potential drug targets for diseases and gene defects and for developing active molecules against those drug targets. The student is introduced to the process of throughput screening of libraries of chemicals against specific drug targets that has revolutionized the drug discovery process and learns about current therapeutic approaches in major diseases. The bioethical issues in drug discovery approaches and biotechnology based therapies are discussed. The course format will be 3h/week lectures with discussions on R&D of pharmaceutical drugs. PREREQUISITE(S): BIOL-231, BIOL-371

**BIOL-473 Clinical Research; ECTS/Credit Units: 6/3**

In this course student will learn about the rationale for the steps required in clinical drug development and testing, the management of the scientific and clinical research process and the role of organizations (Food and Drug Administration FDA, and European Medicines Evaluations Agency EMEA), in reviewing the safety and efficacy of biotechnological or pharmaceutical products and approving their marketing as new drugs for the therapy of diseases and/or genetic disorders. The course also focuses on the bioethical considerations in the conduct of medical research and the question of justice in access to new drugs and genetic technologies, through case studies discussions. The course format will be 3h/week lectures with discussion of case studies. PREREQUISITE(S): BIOL-231, BIOL-371

**BIOL-481 Viruses and Human Diseases; ECTS/Credit Units: 6/3**

This course aims to provide students with an integrated and fundamental understanding of virus structure and diversity, the cell/molecular aspects of viral replication, the pathogenic effects and pathways of viruses, the factors that determine host interactions and host defense and the relevance of virus pathogenicity to human diseases. The format of the course will be 3h/week lectures/demonstrations. PREREQUISITE(S): BIOL-251

**BIOL-491 Research Project I; ECTS/Credit Units: 6/3**

This course introduces the student to the procedures, practices and ethical issues of scientific research. The parts of a research proposal will be introduced, as well as methods of reporting and disseminating study findings in a comprehensive manner and for particular target audiences. Course content includes the anatomy of research publications; the levels of evidence in basic, clinical and public health research; guidelines to assess the validity and significance of research data/output. Focus will be on how to design an experiment, collect and analyze data (qualitatively/ quantitatively) and present/discuss research results in a professional and ethical manner. During the period of the course, students are expected to formulate and plan the stages of their research project related to human biology and write a research proposal, which includes: framing and supporting a research problem with the relevant background and literature, identifying a theory basis for the research question(s) to be addressed, and selecting an appropriate study design/methodology strategy based on a risk analysis of expected results. Students may

start working on their research project on approval of the proposal by their research supervisor. The format of the course will be 3h/week of lectures/demonstrations. PREREQUISITE(S): Fourth year standing with completion of 90% of Required (R) courses.

**BIOL-492 Research Project II OR BIOL-492A Research Project II (field work); ECTS/Credit Units: 10/5**

This course addresses the essentials of students doing independent research under the supervision of a faculty. Focus will be on the student following the design strategy/methodology proposed in BIOL-491, collecting and analyzing the experimental data, and presenting and discussing their research results on the basis of their original hypothesis and the relevant background and literature available/used. Students are required to write a formal Research Project Report where all these are incorporated and to present and defend their Research Project results and conclusions. PREREQUISITE(S): BIOL-491. Completion of all 300 series Required (R) courses is recommended.

**CHEM-105 General Chemistry; ECTS/Credit Units: 6/3**

Students are introduced to the fundamental principles of general chemistry. Topics include significant figures and measurements, the composition and structure of matter, chemical stoichiometry, aqueous solutions and aqueous-phase reactions, electronic structure of atoms, chemical periodicity, chemical bonding and molecular geometry. Students gain practical experience in the laboratory through experiments and workshops on special topics, which place the lecture material into perspective. The format of the course will be 3h/week lectures and 2h/week laboratory session. PREREQUISITE(S): A-level High School Chemistry or CHEM-104 Foundation Course.

**CHEM-135 Physical Chemistry; ECTS/Credit Units: 6/3**

This course is a continuation of CHEM-105 and explores the basic principles of physical chemistry. Topics include thermochemistry, gases, intermolecular forces, solubility and colligative properties, chemical kinetics, the theory of chemical equilibria, acid-base equilibria, atmospheric chemistry and chemical thermodynamics. Students develop further laboratory skills through lab exercises and workshops aimed to enhance the lecture material. The format of the course will be 3h/week lectures and 2h/week laboratory session. PREREQUISITE(S): CHEM-105

**CHEM-245 Organic Chemistry; ECTS/Credit Units: 6/3**

Students are introduced to the basic principles of organic chemistry. Topics include saturated and unsaturated open-chain and cyclic hydrocarbons, oxygen-containing molecules, nitrogen-containing molecules, phosphorus-containing molecules, molecular spectroscopy and organic structure determination, organic synthesis and mechanisms, and an introduction to biological molecules. The course includes a rigorous laboratory session where students develop practical skills in the synthesis and analysis of organic compounds, as well as in the extraction and isolation of organic products from natural substances. The format of the course is 3h/week lectures and 2h/week laboratory session. PREREQUISITE(S): CHEM-135

**COMM-200 Business & Professional Communication; ECTS/Credit Units: 6/3**

This course is designed for the student who anticipates a career in business or a profession. The student will study business and human communication theories and effective reading and listening techniques. Non-verbal symbols are also discussed. Students will be taught in how to conduct and effective interview. The format of the course is 3h/week lectures. PREREQUISITE(S): ENGL-100

**COMP-150 Microcomputer Applications; ECTS/Credit Units: 6/3**

The course is designed to introduce the student to popular application software packages, which may include word processing, electronic spreadsheets, database management, graphics, and statistical applications. Emphasis will be on how each can benefit the user in the home, the classroom, or the office. Includes supervised structured laboratory exercises. The format of the course is 3h/week lectures. PREREQUISITE(S): None

**COMP-151 Fundamental Concepts of Information and Computer Technology; ECTS/Credit Units: 6/3**

This course is an introduction to computers and information processing. It covers computer literacy topics including a brief history of computing, examination of information technology (input, output, storage, processing), current trends in the use of computers, and the impact of computers on society. The format of the course is 3h/week lectures. PREREQUISITE(S): None

**ENGL-100 Basic Writing; ECTS/Credit Units: 6/3**

The course provides for the review of basic writing skills. Proficiency will be increased in the use of grammar and mechanics. The writing process will be reviewed, evidenced by attention to subject, audience and purpose, and pre-writing, writing and editing skills, in addition to concentration upon the understanding and ability to write fully developed paragraphs and multi-paragraph assignments. The course will also identify and develop different writing styles in some depth and students will demonstrate increased self-awareness in writing through collaboration with peers, in small groups and independent study. The format of the course is 3h/week lectures. PREREQUISITE(S): Placement Test or BENG-100

**ENGL-101 English Composition; ECTS/Credit Units: 6/3**

This course provides for the study of the strategies of written discourse, concentrating on the whole essay and emphasizing expository and persuasive prose. Attention is given to the mechanics of English and correct grammatical forms. The goal of the course is directed toward the process of gaining rhetorical fluency, i.e. the discovery of the most suitable stylistic means of informing and appealing to a particular audience. Each student will write themes using various patterns of formal organization. Models of good expository prose will be examined to illustrate the principles of effective composition. The format of the course is 3h/week lectures. PREREQUISITE(S): Placement Test or ENGL-100

**ENGL-102 Western World Literature & Composition; ECTS/Credit Units: 6/3**

The course introduces the student to the great ideas and literary works which have shaped Western Civilization. Included in the course is the writing of a critical paper, involving library research, documentation, revision and the preparation of a final draft. The format of the course is 3h/week lectures. PREREQUISITE(S): ENGL-101 or consent of instructor

**ESCI-200 Society & Environment; ECTS/Credit Units: 6/3**

This course examines some of the most pressing social and environmental issues that the world is facing today and analyzes the interrelationship between human societies and the natural environment. It explores issues such as poverty and wealth, globalization, population growth, urbanization, food and agriculture, pollution, biodiversity conservation, environmental justice, and sustainable development. Through readings and class discussion, the course addresses the origins of these problems and explores alternative approaches for attaining a more sustainable future. The format of the course is 3h/week lectures. PREREQUISITE(S): None

**HIST-201 World History to 1500; ECTS/Credit Units: 6/3**

This course provides the student with an understanding of the major themes in world history from ancient times to 1500AD. It focuses on the emergence, evolution and interaction of world civilizations. The format of the course is 3h/week lectures. PREREQUISITE(S): None

**MATH-192 Calculus for the Life Sciences I; ECTS/Credit Units: 6/3**

This course introduces the student to the concept of infinitesimal calculus with both theory and applications. It also prepares the student for the continuation of calculus in the next two calculus courses. The format of the course is 3h/week lectures with problem solving demonstrations. PREREQUISITE(S) For Human Biology majors: Mathematics Placement Test or MATH-180: Algebra and Trigonometry

**MATH-193 Calculus for the Life Sciences II, ECTS/Credit Units: 6/3**

This course is intended to be a survey of calculus topics specifically used in applications in life sciences. The course focuses on integration techniques, linear algebra and differential equations using life-sciences examples and problem solving exercises. The emphasis throughout is more on practical applications and less on theory. The format of the course is 3h/week lectures with problem solving demonstrations. PREREQUISITE(S): MATH-192

**MULT-160 Introduction to Multimedia; ECTS/Credit Units: 6/3**

The course introduces the student to the basic concepts of multimedia. It concentrates on the hardware and software technology involved. Areas discussed are the impact of hypermedia applications in our life and several societal issues. It examines all of the multimedia elements - text, graphics, animation, video, sound. Includes supervised structured laboratory exercises and project. The format of the course is 3h/week lectures with hands on demonstrations. PREREQUISITE(S): None.

**MULT--161 Interactive Multimedia Development; ECTS/Credit Units: 6/3**

The course introduces the student to the basic concepts of interactive multimedia development. It consists of lectures, software demonstrations, CD-ROM exploration of relevant material and practical exercises. It concentrates on the use of multimedia software such as Macromedia Director available for interactive multimedia and Adobe Photoshop for image creation and manipulation. This course is purely practical with supervised structured laboratory exercises. The theoretical knowledge gain in the prerequisite course and the software packages introduced are put in this course into practice. The student will be required to create and present a CD-ROM multimedia project by the end of the course. The format of the course is 3h/week laboratory practice. PREREQUISITE(S): MULT-160

**MUS-110 Introduction to Music; ECTS/Credit Units: 6/3**

This course attempts an exploration of Music in sounds. Emphasis is given on the development of music literacy in reading and writing music. It provides an opportunity on listening, understandings, enjoying and appreciating music. The format of the course is 3h/week lectures. PREREQUISITE(S): Basic music background

**PHIL-120 Ethics; ECTS/Credit Units: 6/3**

The course will cover a number of ideas, theories and arguments on ethics. As a philosophical subject ethics will stress the reasons behind different positions. Students will be encouraged to assess where the weight of reason rests. The format of the course is 3h/week lectures. PREREQUISITE(S): None

**PHYS-110 Elements of Physics I; ECTS/Credit Units: 6/3**

The aims of this course are to give students an introduction to the essential principles of general physics, to encourage students to apply physical laws in interpreting physical phenomena, and to enable them to describe qualitatively the physical changes taking place in the world around them. The format of the course is 4h/week lectures  
PREREQUISITE(S): None.

**PSY-110 General Psychology I; ECTS/Credit Units: 6/3**

This introductory course is designed to clearly set forth the principles and the processes in the scientific study of human behavior and mental processes. Students will be introduced into major current theoretical perspectives and controversies as well as to psychological empirical methods and scientific research used to study the complexities of human behavior and mental processes. The format of the course is 3h/week lectures.  
PREREQUISITE(S): None.

**PSY-111 General Psychology II; ECTS/Credit Units: 6/3**

This course will introduce the students to the scientific field of psychology, through the study and critical review of the theories and perspectives of how intelligence works and how motivation, emotion and gender traits affect the development of human behavior and personality (normal and abnormal). Students will also be introduced to the approaches used in the treatment of psychological and psychiatric abnormalities and learn about the practical approaches in applying psychological theory in the treatment of human behavior. The format of the course is 3h/week lectures. PREREQUISITE(S): PSY-110

**PSY-210 Social Psychology; ECTS/Credit Units: 6/3**

This introductory course in social psychology is designed to clearly set forth the principles and the process of social psychological research in a way that is sensitive to the students' capabilities and interests. Students are expected to gain an insight into those questions that stimulate investigation into the complexities of human social behavior and develop a sensitive and critical approach to current explanations. The format of the course is 3h/week lectures. PREREQUISITE(S): PSY-111

**PSY-240 Abnormal Psychology; ECTS/Credit Units: 6/3**

Survey of the major forms of abnormal behavior. The course investigates the symptoms and diagnostic criteria for various types of mental illness, theories about how different types of abnormal behavior develop and are maintained, and various therapeutic approaches used in the treatment of mental disorders. The format of the course is 3h/week lectures. PREREQUISITE(S): PSY-111

**PSY-330 Psychology of Gender; ECTS/Credit Units: 6/3**

Gender and gender-related behaviors are studied from social and psychological perspectives. Major topics include the creation and development of gender identities, gender in close relationships, social and cultural influences on formation and maintenance of gender identity, gender issues in mental health, influence of gender on work and achievement, and gender issues in aging. The format of the course is 3h/week lectures.  
PREREQUISITE(S): PSY-111, PSY-210

**REL-250 Ancient & Medieval Christian Thought; ECTS/Credit Units: 6/3**

Early and Medieval Christian Thought focuses upon the development of Christian thinking from apostolic times to the eve of the Protestant Reformation and beyond. It centers on those individuals of the period who influenced thinking and practice in their own as well as subsequent times. It also focuses upon important historical, social and political events that interacted with Christian dogma throughout the centuries. The format of the course is 3h/week lectures. PREREQUISITE(S): None

## **SOC-101 Principles of Sociology; ECTS/Credit Units: 6/3**

This course is an introductory study of the foundations of Sociology and will make a sincere effort to reclaim our chance to think in a spherical, interdisciplinary manner. The declared purpose is to awaken the Sociological imagination and spark the creative energies of critical intelligence in order to first understand, then explain and/or intervene in social processes. The students are expected to familiarize themselves with the rich corpus of sociological theory and practice that will enable them to make sense of the plight, the dilemmas and the possibilities of the global modernity in which they live. The format of the course is 3h/week lectures. **PREREQUISITE(S): APPENDIX I**

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## **REGULATIONS FOR STUDENTS' RESEARCH PROJECT**

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### **1. General**

- 1.1 For the award of the B.Sc. Degree in Human Biology, every student must undertake to write a research proposal, execute the research proposed and submit a research report and give an oral presentation as part of the requirements of the major courses: BIOL-491 Research Project I and BIOL-492 Research project II OR BIOL-492A Research Project II (field work). **Students carrying out a non-laboratory based project should register for BIOL-492A.**
- 1.2 The coordination of students' research projects is the responsibility of the Programme Coordinator.
- 1.3 For BIOL-491, in addition to attending and passing the theoretical part of the course, students are required to formulate and plan the stages for their Research Project to be carried out in BIOL-492. This includes the selection of a research project, and the approval of a written Research Proposal. Passing the theoretical part of the BIOL-491 course and approval of the Research Proposal are required in order to gain the full credits (10 ECTS) in BIOL-491 and be allowed to register in BIOL-492/BIOL-492A.

The Research Proposal [15-20 pages (double spacing) with references] should include:

- A Title page
- Acknowledgements
- Contents
- A summary/abstract of the research proposed.
- Abbreviations-List of Symbols
- Introduction:
  - Framing the research problem/hypothesis.
  - Supporting the research problem/hypothesis with the relevant background literature which identifies/supports the theoretical basis that will be used to address the research question/hypothesis.
- Materials/Methods:
  - Identifying the materials needed to carry out the research

- Selecting and referencing the appropriate study design/methodology strategy/techniques to answer the question.
- Results
  - A risk analysis of expected results.
- Discussion (to be completed later)
- Conclusion (to be completed later)
- References (Bibliography)
- Appendices (if any)

This Research Proposal will constitute the basis of carrying out the research and for writing the final Research Report required in BIOL-492.

For further details on the writing of the research proposal see the Instructions further below.

- 1.4 Registration in BIOL-492/BIOL-492A can be at any time after approval of the Research Proposal and it entitles the student to start working on the project. Students whose project involve laboratory work must make arrangements with their supervisor for access to the labs and any other facilities and equipment required in order to carry out their project.
- 1.5 Students must complete the practical part of the project and submit a Research Report (30-50 pages), which must be orally presented to the Project Evaluation Committee by the end of the final year. Successful completion of all of the requirements of BIOL-492 is equivalent to 10 ECTS credit units and is required for the award of a B.Sc. Degree in Human Biology. Students who may have finished all other course work but have not passed successfully their oral presentation and/or submitted a Final Research Report will not be able to graduate until they do so.

For details on the writing of the research report see the Instructions further below.

## **2. Announcement of Research Projects.**

- 2.1 Faculty submits to the Programme Coordinator the titles and a short description of student research projects, which are announced to the students in the beginning of the course BIOL-491 Research Project I.

## **3. Choosing a research project and writing a Research Proposal (BIOL-491).**

- 3.1 Every student taking BIOL-491 needs to secure a research project by completing the “UNDERGRADUATE RESEARCH APPLICATION FORM” indicating his/her preference of projects. The Human Biology Faculty Committee will make the best of effort to match students with projects based on their interests and abilities.
- 3.2 When projects are assigned, it is advisable that each student sees the faculty supervising his/her project to discuss it and agree on the approach

to follow. Each student must then submit to the Programme Coordinator, a summary of the research project that will have the approval of the project supervisor, using the form “APPROVAL FOR RESEARCH PROJECT AND RESEARCH PROPOSAL”. This form must be signed in section A by both the supervisor and the student. A copy of this signed form should be kept by the student as it will be needed later on for getting the supervisor’s approval (section B), for the Research Proposal.

Students are required to write a Research Proposal on their project [15-20 pages (double spacing) with references] as explained in 1.3 above and following the guidelines below. Students have also the opportunity during this period, to request for any additional training in techniques they may require to carry out their research project.

Students must submit their Research Proposal to their supervisor for approval before the end of the semester. The student’s supervisor must sign (Section B) the APPROVAL FOR RESEARCH PROJECT AND RESEARCH PROPOSAL FORM, which must be submitted to the Programme Coordinator in order for the student to be permitted to register in BIOL-492/BIOL-492A.

- 3.3 Students may be allowed only under special circumstances, to change their research project and/or supervisor within the first two weeks after they have been assigned to a project, upon approval by the Programme Coordinator. Submission of a new form (3.2) is required if there is a change of either the project or the supervisor.
- 3.4 If the Research Proposal is not approved by their supervisor, students are allowed to rewrite and submit (twice) the proposal to their supervisor. Three failures in getting the approval, requires that the student registers and has to retake BIOL-491, and the student can then choose another project to work on.

#### **4. Progression and Assessment of Research Project (BIOL-492/BIOL-492A Research Project II).**

- 4.1 Registration of student in BIOL-492/BIOL-492A can be at any time provided that the student has completed all the requirements for BIOL-491 (i.e. passing the theoretical part of the course and obtaining the supervisor’s approval for his/her Research Proposal).
- 4.2 Students are required to meet with their supervisor and report on the progress on their research project at least three times during the course. The progress made should be recorded at each meeting by completing the “ASSESSMENT OF PROGRESS OF RESEARCH PROJECT FORM” at the end of the meeting. This form must be signed by both the supervisor and the students and kept by the supervisor. The progress made is assessed as S = Satisfactory or U = Unsatisfactory. The supervisor should justify his/her assessment (by stating what needs to be done) and the students should comment on the supervisor’s decision in the spaces provided in this form. In the case of a continuous unsatisfactory assessment after two semesters, students must re-register in the BIOL-492/BIOL-492A course and it may be required to retake some courses.

- 4.3 Upon the satisfactory completion of the research project the student is required to submit to his/her supervisor a draft of the Research Report for approval at the announced deadline and the student's oral presentation before the end of the semester/year of graduation.

The Research Proposal approved in BIOL-491 can be used to write the Research Report by incorporating any new text in the introduction and any details in methods/materials used, the data/results obtained and analyzed (Figures, Tables, Pictures etc.) as well as by including a Discussion and Conclusions sections along with any additional literature related to the project.

The Research Report must be approved by the supervisor before the oral presentation. Assessment is specified as S = Satisfactory or U = Unsatisfactory or I = Incomplete and the outcome is reported by the supervisor in the Form "APPROVAL FOR SUBMISSION OF RESEARCH REPORT FORM" a copy of which is kept by the supervisor. The supervisor should justify his/her assessment (by stating if anything else needs to be done) and the students should comment on the supervisor's decision in the spaces provided in this form.

Upon the supervisor's approval for submission of the report the student must submit three copies of the report to the Programme Coordinator in order to arrange his/her oral presentation. Submission must be accompanied by both, "APPROVAL FOR SUBMISSION OF RESEARCH REPORT FORM" and the "SUBMISSION OF RESEARCH REPORT FORM" signed by the supervisor.

- 4.4 The Programme Coordinator is responsible for forwarding the copies of the report to the members of the Project Evaluation Committee and for arranging the oral presentation (20 minutes with 10 min questions/answers), to take place a week after submission. The presentation is also open to the Department and to the students of the Programme.

- 4.5 The Project Evaluation Committee is composed of the Course Leader and at least two faculty members one of which is the supervisor of the student and the other a faculty from the University or an external invited by the Programme Coordinator with the agreement of the supervisor. The Committee responsibility is to assess the project, the report and the oral presentation separately as indicated below:

- 40% on the experimental/theoretical part of the project
- 40% on the written presentation of the project
- 20% on the oral presentation/questions answered

The criteria used for the assessment are as follows:

- a. The effort made and the quality of the work in terms of analyzing the problem and of designing of experimental work (20%)
- b. Completeness and validity of the results in relation to the problem addressed (20%)

- c. Evidence for background scholarly research, organization and presentation of the project in a professional manner (20%)
- d. Quality of discussion of results and the quality of expression in English (20%)
- e. Quality of oral presentation (10%)
- f. Questions answered (10%)

After the oral presentation, the Committee members have to complete the “EVALUATION OF RESEARCH PROJECT AND OF ORAL PRESENTATION FORM” and submit this form along with the final grade to the Programme Coordinator. The outcome of the evaluation is announced to the student by the supervisor along with any corrections/improvements, which may be requested by the committee members. Students must get a 60% overall assessment mark for a satisfactory completion of the BIOL-492/BIOL-492A course requirements.

The Supervisor and/or Programme Coordinator may ask for a review of the final mark by the other two Assessors if he/she feels that a student has been marked disproportionately with the rest.

- 4.6 If there are any corrections and/or improvements requested by the Evaluation Committee, students must incorporate these and have them approved by the project supervisor within one week after the oral presentation and before printing any copies of the final report for submission.

Three bound final copies together with the signed “SUBMISSION OF FINAL RESEARCH REPORT FORM” must be submitted to the Head of the Department. Submission of the final copies is required for the award of the Degree in Human Biology.

## **5. Resolution of any problems:**

- 5.1 A student may talk to the Programme Coordinator if there is a serious problem between the supervisor and the student, which prohibits the students in progressing with his/her research proposal and project.
- 5.2 The student may also talk to his/her Faculty Advisor or to the Head of Department about any problems related to his progress in BIOL-491 and BIOL-492/BIOL-492A.

## **6. Forms:**

All forms are available from the Human Biology Programme Coordinator.



## **SPECIFIC INSTRUCTIONS FOR THE WRITING OF A RESEARCH REPORT (RESEARCH PROPOSAL AND/OR RESEARCH REPORT)**

A Research Report must be well presented, written in correct English, typed and printed on a high quality printer (i.e. a laser printer). The final written report must be about 30-50 pages long and include (text, Figures, Tables and References).

For the purpose of consistency students must follow the following rules.

### **1. General.**

- 1.1 Every Research Report must be bound in the style of a book.
- 1.2 The following must be included in the front hard cover:
  - a. The name of the University and of the Department and School.
  - b. The title of the research project
  - c. The name of the student
  - d. The date of completion
- 1.3 The same must be repeated on the title page.
- 1.4 Any acknowledgements could be included on the second page and they should not exceed half a page.
- 1.5 The list of contents is included in the following pages under the title "CONTENTS". The title of each Chapter and subsections (if there are any) with their corresponding page numbers as they appear in the report are listed under contents. Use Roman numerals (i, ii, iii, iv, etc) for all pages up to and including "CONTENTS". Use Arabic numbers (1, 2, 3 ) for the remaining pages.
- 1.6 A summary of the research no more than a page long, is included on the third page under the title "ABSTRACT".
- 1.7 A list of abbreviations used in the report (Note: The full name followed by the abbreviation should appear in the report when used for the first time)
- 1.8 The first Chapter should contain the introduction under the heading "INTRODUCTION" (page 1).
- 1.9 The remaining chapters ("METHODS", "RESULTS", "DISCUSSION") should follow with their appropriate headings until the last chapter which should contain the conclusions under the heading "CONCLUSIONS".
- 1.10 The list of citations follow under the heading "REFERENCES" , which are numbered from 1 to N and listed alphabetically using the Harvard Referencing System. For more information for the format of writing references see: <http://library.bcu.ac.uk/references.pdf> (accessed **08/05/2014**)
- 1.11 In the case of Appendices, they follow right after the References list. Each Appendix should start on a new page. If there are several, each Appendix should be numbered using Roman numerals. Questionnaires used for your research, raw data output from devices used can be included in Appendices.

## 2. **Research Report Format**

2.1 The Research Report should be typed on white paper, size A4. The font used must be Times New Roman, size 12, and line spacing 2.0 (double spacing).

2.2 Figures and Tables can be included within the text at any place of the page but as close as possible to the section of the text where they are referred to for the first time. Figures and Tables must be numbered in sequence in each chapter. For example Figure. 2.1 is the first Figure in the second chapter whereas Figure 3.5 is the fifth Figure in the third chapter. Table 2.1 is the first Table in Chapter two etc.

2.3 If you need to refer to Figures, Tables or Appendices in the text (i.e. in the results, discussion or conclusion etc., use the abbreviation (Fig. N.N) or (Table N.N) or (Appendix XX) .

2.4 **TITLE OF TABLES:** Each Table should be numbered and contain a short title description of the contents of the Table **at the top** of the Table.  
e.g. **Table 1.0** Fold purification and % yield of purified beta-glycosidase

2.5 **TITLE OF FIGURES:** Each Figure should be numbered and contain a short title description of the contents of the Figure **at the bottom** of the Figure.  
e.g. **Figure 2.2** Effect of MgCl<sub>2</sub> on the activity of beta-glycosidase subtypes.

2.6 **TEXT IN TABLES AND FIGURES:** At the bottom of a Table, as well as after the short title of a Figure you may include any further explanations of symbols, statistics information or other information that applies.

## 3. **Oral Presentation (20 min with 10 min question time)**

You will find very good instructions on how to make an effective presentation using Power Point in the following web address:

[http://www.slideshare.net/satyajeet\\_02/how-to-make-effective-presentation](http://www.slideshare.net/satyajeet_02/how-to-make-effective-presentation)  
(accessed 08/05/2014)